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ATTACHMENT C

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Atlanta GA. 30309

.....

BellSouth Cellular/SBC RFQ

Network Solution for E911 Phase II

.....

PRIVATE/PROPRIETARY:

Document for SBC Wireless and BellSouth Wireless Joint Venture planning purposes only.
Not for use or disclosure outside SBC or BellSouth except under written agreement.
Intended only for those persons with a need to know.

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Purpose of the RFP

The purpose of this Request For Proposal is to obtain detailed supplier technical, planning, and pricing information regarding their their Advanced Location Services equipment, systems, applications, and services.

With regards to the future potential for Advanced Location Services, the most immediate need is to meet the FCC Phase 2 E911 location requirements (125 meter 67% RMS)*. We feel that these are truly minimum requirements and expect that any Advanced Location Services system deployed in the Ameritech Cellular network to perform with a much higher degree of accuracy.

General RFP Requirements

Following are the general RFI requirements:

1.1 Pricing and Other Required Information

Provide firm pricing and all information in sufficient detail to show all required system components and software based upon the requirements in this RFP. Ameritech Cellular reserves the right to reject any or all responses or portions thereof and to waive any informality or irregularity in any response received.

1.2 Treatment of Information

All information contained in this RFP is confidential and proprietary. Said information shall be used by your company only for the purpose of submitting a response to this RFP. Said information shall not be disclosed to any employee of your company without a need to know or to any third party without the prior written consent of -----.

NO SPECIFICATIONS, DRAWINGS, SKETCHES, MODELS, SAMPLES, TOOLS, COMPUTER PROGRAMS, TECHNICAL INFORMATION OR ANY OTHER DATA, WRITTEN, ORAL OR OTHERWISE FURNISHED BY YOU TO US HEREUNDER OR IN CONTEMPLATION HEREOF SHALL BE CONSIDERED OR CLAIMED BY YOU TO BE CONFIDENTIAL OR PROPRIETARY UNLESS SPECIFIED BY YOU IN WRITING IN ADVANCE. RELIABILITY INFORMATION MAY BE SUBJECT TO OUTSIDE REVIEW, SUBJECT TO EXISTING NON-DISCLOSURE PROVISIONS.

1.3 Response Due Date

Your response, complete in all aspects, must be received in writing no later than 4:00PM (CST) Tuesday, August 29, 2000.

If you elect not to respond to this RFP, please notify us in writing as soon as possible but no later than the RFP due date. It is requested that this RFP be returned with your written notification.

1.4 Preparation of Response

Your company is responsible for any and all costs incurred in the preparation of a response to this RFP and----- shall have no responsibility therefor.

Your company's submission of a response to this RFP creates no rights or obligations upon ----- unless an agreement is negotiated and executed by both companies.

The response to this RFP must be made in the same format, paging, and question numbering scheme as it is presented. All sections of the RFP must be responded to. Responses must be

signed by a duly authorized representative of your company. An unsigned response will be rejected.

1.5 Response Requirements

We will require five (5) complete signed paper copies of your response and one (1) electronic copy. Please mark one paper RFP copy as "Master Copy." This RFP was created using Microsoft Word '97, Visio 4.0, and Microsoft Excel '97.

If discrepancies are found between the paper and electronic copies of your response, the "Master Copy" will govern. Your signed response must refer to RFP # 00-01-RJT and be mailed to:

Failure to direct your response to the above person may result in your response not being considered. No copies of your response should be directed to any other ----- personnel.

2.4.6 Questions/Matters (Technical, Business, and Other)

----- is your single point of contact for all questions/matters related to this RFP. All questions/matters related to this RFP are to be directed to him, in writing, at the following address, FAX, or e-mail. In the interests of fairness, questions and answers may be shared by -----with all other companies being asked to respond to this RFP. Proprietary or confidential information will not be disclosed. To insure that your inquiries can be given proper and timely attention, we ask that they be submitted at least ten (10) days prior to the due date for this RFP. However, where time constraints necessitate a verbal inquiry, contact ----- on ()xxx-xxxx.

Technology and Availability

Technology Support

Please provide information highlighting your products' ability to support the following technologies. Your response should include how and when you plan to support technologies currently not supported by your product. For those technologies in beta test or currently available, please state if you have conducted field trials with a service provider.

- Analog
- ANSI 136
- GSM
- CDMA IS 95
- 1XRTT
- EDGE
- EDGE Compact
- VoIP On EDGE Carriers
- WCDMA
- CDMA 2000

Note: Please specify technology support for each of the following bands 800MHz, 1900MHz, 1900MHz, and 700MHz.

Standards Supported

Please state the level of standards compliance of your products' with the following standards. Please note all exceptions.

| | Comply | Comply with exception |
|--|--------|-----------------------|
| IS-41A/IS-53 Rev. 0 | | |
| IS-41B/IS-53A | | |
| IS-41C | | |
| IS-41D | | |
| J-STD-034 Wireless Enhanced Emergency Services | | |
| PN-3890 Phase II Emergency Services | | |
| PN-4288 Emergency Services Beyond FCC Mandate | | |
| Telcordia (Bellcore) GR-63-CORE and GR-1089-CORE Network Equipment Building Systems ("NEBS") | | |
| PN-XXXX Location Services for Spread Spectrum Systems (future – balloted 5/99) | | |

Call Scenarios

Please describe how your product supports the following call scenarios:

TDMA

- Position on analog call setup

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Not for use or disclosure outside SBC or BellSouth except under written agreement.
Intended only for those persons with a need to know.

- Analog Control setup to analog Voice channels.
- Analog Control setup to digital Voice channels.
- Analog voice channel tracking.
- Analog idle mode tracking.
- Position on digital call setup.
- Digital voice channel tracking.
- Multiple Digital Control channels per sector.
- Digital (TDMA) setup to an analog voice.
- Digital setup to digital traffic channel.
- Digital idle mode tracking.
- Signal Message Encryption.
- Voice Encryption.

GSM

- Position on GSM call setup.
- GSM idle mode tracking.
- Tracking on a GSM voice channel.
- Tracking on a frequency hopping voice assignment in GSM.

Note: "Digital" implies ANSI 136 digital technology unless specified.

Repeater Support

1. Please describe how your product can locate mobiles served by an F1-F1 repeater?
2. Please describe how your product can locate mobiles served by an F1-F2 repeater?

System Retune and Performance Monitoring

1. Please describe the process by which your product stays in sync with the cellular/PCS network when the channels are retuned. This should include any manual or automated procedures required to maintain system performance.
- 2.

4.6.2.1 Components

Include all required and optional network, server, handset, and PSAP hardware and firmware, power and space requirements, including any switch and/or SCP requirements. Include any system redundancy options.

4.6.2.2 Software Features and Dependencies

Include all required and optional network, server, handset, and PSAP application software and feature requirements and dependencies, including any switch and/or SCP requirements. Include a list of those PSAP mapping/CAD systems that your system supports.

4.6.2.3 Physical connectivity

Provide end-to-end interface requirements and protocols, LEC/CLEC interconnection requirements, ALI database requirements, and any wireless network and LEC 911 network interface hardware and software.

4.6.2.4 Service Provisioning Requirements

Provide detailed wireless network and LEC switch translation requirements and dependencies.
Also provide detailed service provisioning requirements (Done at cell site level? Class of Service?
Automated input/Interfaces?)

4.6.2.5 Call Flow Diagrams

Provide end to end system call flow diagrams that show call set-up, progress, and completion messages and data flows using “pong” diagrams. These should include as a minimum: 911 call set-up and location delivery, 911 call location update (request and delivery), 911 call transfer, 911 call-back, and 911 call termination. Commercial services should have their own diagrams showing the above operations where applicable.

Section 4.6.3 Product and Services Traffic Information

Please provide typical per call and busy hour voice and data traffic requirements for each leg of the proposed product and/or service. Pay particular attention to traffic on any Mobile handset to RF voice and control channel and STP or SCP link requirements and applicable system throughput (TPS).

System Dimensioning Information

1. Are there LMU requirements? If so, your response should include, but not be limited to, the following information.
 - Do we need a DS0?
 - How many cells per LMU are required to meet the FCC network requirements?
 - Are external antennas required?
 - If external antennas are required, please provide specifications. This should include physical dimensions and wind loading specs.
 - If antennas are required, where do they need to be positioned?
 -
 - What are the electrical and space requirements?
 - If our cells have more than three sectors, does your system require any addition hardware?
2. What are the requirements of the Mobile Positioning Server (MPS)? Your response should include, but not be limited to, the following.
 - How many LMUs can an MPS serve?
 - Does your MPS support standardized interfaces?
 - How will the MPS interface with the PSAP hardware and software?
 - What is the cost per MPS?
 - Will the MPS support both mobile assisted and mobile-based solutions and handsets?
 - What are the electrical and space requirements?
 - Does the MPS require an antenna?
3. What are the requirements related to the Mobile Positioning Center (MPC)? Your response should include, but not be limited to, the following.
 - Mobile Positioning System interface requirements for Generic MPC.
 - Specific MPC testing/integration performed to date and plans for future
 - Do you provide an MPC as an OEM? If so, please detail.
 - Do you provide an MPC function via a third party. If so, please detail.

4. Deployment requirements:

- Are there any special considerations or costs associated with integrating your system with the following infrastructures?
 - Ericsson GSM
 - Ericsson TDMA
 - Nortel GSM
 - Nortel TDMA
 - Lucent Series II
 - Lucent Flexent
- Does this technology require any hardware or software modifications to the cell site?
- Does this technology require any hardware or software modifications to the MSC?
- If your system utilizes AOA, what is the impact if AOA antennas can not be installed? (Leasing, structural or zoning issues) in the following cell percentages:
 - 10% of cells without AOA antennas.
 - 20% of cells without AOA antennas.
 - 40% of cells without AOA antennas

What MSC arrangements are required to install the field and switch hardware? Describe the field support and project management services provided for an initial installation and turn-up and the continuing post installation support for the proposed system.

- Who will install the hardware cell and switch hardware?

Pricing

1. Scenario #1 Assumptions
 - 5000 Cell Sites
 - 18 MSC in 9 States
 - 30% PSAP Request each year
 - Matching percentage of cells and MSC's to PSAP requests.
2. What is the firm pricing for all network components given the above assumptions? This should include, but not be limited to all system software, hardware, LMU's and miscellaneous installation hardware/cabling costs. Is there a standard configuration.
3. The system will be required to support each of the technologies listed in item 1. Please list any charges beyond pricing in #2 and maintenance fees that would be required to support each of the technologies.
4. Please provide EF&I pricing for location network growth on a cell by cell basis.

System Performance and Monitoring

- Please describe the process by which your system can be monitored for performance and alarming. Please include in your response the following:
 - A description of any software required.
 - Alarm format and structure.

- Interconnect requirements.
- System interface capabilities with a network control center.
- Describe the network redundancy and provide information on MTF for all network components.
- A complete list of all available alarms.
- A location system will be required to be in compliance with the attached "Network Monitoring and Control" interface document. Describe your ability to meet those requirements. [NOTE THAT THIS NEEDS TO BE MADE INTO AN SBC OR "ALLOY" DOCUMENT, UNLESS WE JUST INCLUDE TEXT AS AN APPENDIX TO THE RFQ]

Performance Guarantees

- Your system must meet or exceed the current FCC requirements for E911. Note that we may require a Service Level Agreement and/or agree upon Liquidated Damages.
- If the FCC further tightens the location requirements, what is your guarantee that your system will meet and exceed any future tightening of the location requirements? What is the best accuracy that you feel your system can attain?
- Describe your escalation process and corrective action plan if a deployed system does not meet FCC requirements?
-

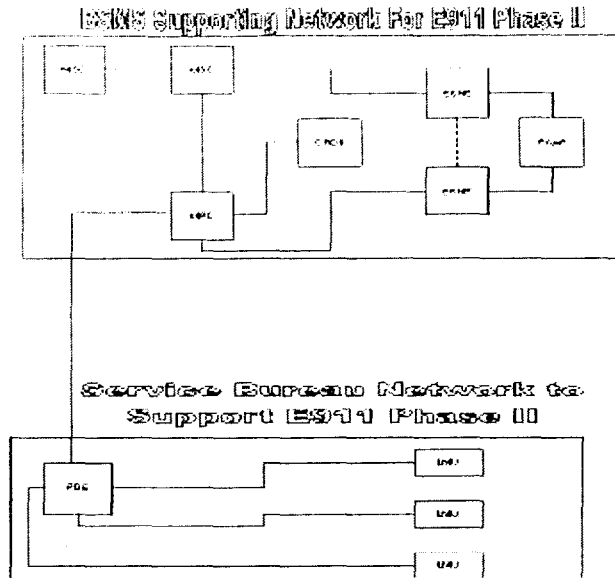
Service Bureau Request:

If your company offers a Service Bureau solution, please also complete the following section. The technical requirements from the previous section will apply to a service bureau environment, whether or not the system or some of its components are installed on ————— property. Please detail any differences from the non-service bureau environment.

Network Configuration

1. Give an overview of your proposed service bureau product approach and related services and how they will satisfy our needs as outlined in this RFQ. Note all variances between your proposed service bureau product and the specified requirements.
2. Provide a detailed architectural description and network diagram for each proposed service bureau product and/or service arrangement, including appropriate drawings overlaid on the RFQ Current, Reference, and Planned network architectures. Responses should also include detailed information for each proposed product and/or service arrangement in the following areas: Service Components, Software Features and Dependencies, Physical connectivity, Service Provisioning Requirements, and Call Flow Diagrams,
3. BSMSG/SBC Preferred Network Configuration:
It is BSMSG/SBC intent to deploy an MPC per market. This MPC will interface with the Market's MSC's and the regional PSAP's. Any Service Bureau (SB) solution must interface with this MPC.

[WE NEED TO EXPAND A BIT ON THIS -- MUST INCLUDE HCAS]



- Please describe your network architecture using this approach.
- Highlight the signaling supported between your PDE and our MPC.
- Describe the system redundancy and routing diversity to minimize system outages.

Service Bureau Pricing

1. Assumptions

- Use BSMSG/SBC preferred network configuration.
- Total number of customers 6,000,000
- Total number of Markets 18
- Total number of PSAP's served _____
- All scenarios are to be built into 3 and 5 year contract periods.
- Please refer to the table below for estimates PSAP deployment schedules and estimated customers covered by these requests.

| Calendar year | Year | % of PSAPs requesting Phase II | Percent of Customers Covered by PSAP Request |
|------------------|--------|--------------------------------------|---|
| Q1/2000 | 2000.1 | 0 | 0% |
| Q2/2000 | 2000.2 | 0 | 0% |
| Q3/2000 | 2000.3 | 0 | 0% |
| Q4/2000 | 2000.4 | 0 | 0% |
| Q1/2001 | 2001.1 | 0 | 0% |
| Q2/2001 | 2001.2 | 0 | 0% |
| Q3/2001 | 2001.3 | 0 | 0% |
| Q4/2001 | 2001.4 | 0.05 | 15% |
| Q1/2002 | 2002.1 | 0.1 | 19% |
| Q2/2002 | 2002.2 | 0.15 | 24% |
| Q3/2002 | 2002.3 | 0.2 | 28% |
| Q4/2002 | 2002.4 | 0.25 | 33% |
| Q1/2003 | 2003.1 | 0.3 | 37% |
| Q2/2003 | 2003.2 | 0.35 | 42% |
| Q3/2003 | 2003.3 | 0.4 | 46% |
| Q4/2003 | 2003.4 | 0.45 | 51% |
| Q1/2004 | 2004.1 | 0.5 | 55% |
| Q2/2004 | 2004.2 | 0.55 | 60% |
| Q3/2004 | 2004.3 | 0.6 | 64% |
| Q4/2004 | 2004.4 | 0.65 | 69% |
| Q1/2005 | 2005.1 | 0.7 | 73% |
| Q2/2005 | 2005.2 | 0.7 | 73% |
| Q3/2005 | 2005.3 | 0.7 | 73% |
| Q4/2005 | 2005.4 | 0.7 | 73% |

2. Pricing Scenarios

- Pricing per subscriber covered by PSAP Requests
- One time and recurring subscriber pricing
- Pricing per subscriber on a market basis
- Pricing per call located

3. Special Considerations

- Special requirements for supporting GSM 1900MHz.
- Special requirements for supporting TDMA operating at both 800 and 1900MHz.
- The system will be required to support each of the technologies listed in RFP Section 2. Please list any charges beyond pricing in #2 and maintenance fees that would be required to support each of the technologies.

System Availability and Rollout Schedules

5. Hardware Availability:

What is your current production capacity for providing the systems/services described herein?

If orders were placed in March 2001 for TDMA800 capable systems, how long would it take to Engineer, Furnish & Install the following quantities?

- 100 Three Sector units:
- 200 Three sector units:
- 300 Three Sector units:
- 400 Three Sector units:
- 500 Three Sector units:
- 600 Three Sector units:
- 1000 Three Sector units:

If orders were placed in March 2001 for TDMA1900 capable systems , how long would it take to Engineer, Furnish & Install the following quantities?

- 100 Three Sector units:
- 200 Three sector units:
- 300 Three Sector units:
- 400 Three Sector units:
- 500 Three Sector units:
- 600 Three Sector units:
- 1000 Three Sector units:

If orders were placed in March 2001 for GSM 1900 capable systems , how long would it take to Engineer, Furnish & Install the following quantities?

- 100 Three Sector units:
- 200 Three sector units:
- 300 Three Sector units:
- 400 Three Sector units:
- 500 Three Sector units:
- 600 Three Sector units:
- 1000 Three Sector units:

DO WE NEED ONE OF THESE FOR GSM 800?

- BSMSG/SBCG/SBC is under a mandated to deploy Phase II solution based on PSAP requests. Please describe how your deployment schedules can be adjusted to meet PSAP requests in the following areas.
 - ◆ PSAP requests in an MSA Urban Areas.
 - ◆ PSAP requests in an MSA Suburban Areas.
 - ◆ PSAP requests in RSA Areas,
 - ◆ PSAP requests in BTA Areas.

Performance Guarantees

- What guarantee will you provide that your system will meet and exceed the current FCC requirements for E911?
- With the FCC suggesting a future tightening of the location requirements, what is your guarantee that your system will meet and exceed any future tightening of the location requirements?
- What steps will your company take if the deployed system does not meet FCC requirements?
- Is your company willing to assume all fines and penalties, including any punitive damages, resulting from your system failure to meet FCC mandates?

[ONLY NEED THIS ONCE]

Privacy and Ownership

Ownership of the BSMS/SBC customer's location data

Describe your methodology for processing and providing the location data to BSMS/SBC. Explain in detail any plans you have for storing, analyzing, or utilizing BSMS location information in any manner outside of the specific function of providing location data to BSMS/SBC.

[BSMS/SBC will want to maintain ownership of the customer's location information]

Privacy of the BSMS/SBC customer's location data

Privacy is anticipated to be a critical issue with location data. Describe your procedures for protecting and safeguarding the privacy of the BSMS/SBC customer's location data.

[Privacy is a huge concern; location data is CPNI data;]

Response Information

- Responses are to be received by BellSouth and SBC no later than August 30, 2000.
- Responses should be in electronic and hardcopy formats.
- All responses are to be delivered to both the SBC and BellSouth contacts listed below.

| BellSouth | SBC |
|---|--|
| Andrew Clegg and Michael Heubel | Robert Tyler and Mark McAllister |
| 404-249-3267 or 404-713-2035 | |
| 1100 Peachtree St. NE Suite 12D01 Atlanta GA. 30309 | |
| <u>Andrew_Clegg@bscc.bls.com</u> | <u>Robert.J.Tyler@cellular.ameritech.com</u> |
| <u>Michael_Heubel@bscc.bls.com</u> | <u>Mcallister@tri.sbc.com</u> |

ATTACHMENT D

Cingular Wireless

E911 Phase II Trial Results

| | |
|---------------|--------------|
| Author | Andrew Clegg |
| Revision | 3.1 |
| Revision Date | 7/5/01 |

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1. Summary

This document summarizes the results of trials of several E911 Phase II location technologies, including TDOA, AOA/TDOA, A-GPS, E-OTD, and RF Mapping systems.

The main conclusions are:

- Accuracy claims made by vendors are overstated because they do not incorporate confidence statistics in their analysis.
- In the Cingular trials, none of the technologies met the FCC accuracy mandate, whether or not confidence statistics are applied.

o

2. Introduction

This document summarizes the results of Phase II E911 location technology trials that have been conducted by BellSouth, SBC, and Cingular (the wireless components of BellSouth and SBC were combined in a joint venture in October, 2000, forming Cingular).

These trials are:

| Technology | Vendor | Air Interface | Date of Trial(s) |
|--------------|---------------|---------------|---|
| TDOA | TruePosition | Analog | 1999 May 6 – 7 |
| Assisted GPS | SnapTrack | GSM | 1999 December 13 – 17 |
| RF Mapping | U.S. Wireless | TDMA & analog | 2000 August 8 – 9 |
| AOA/TDOA | SigmaOne | TDMA & analog | 2000 August 15 – 16 2000 December 10 – 11 |
| E-OTD | CPS | GSM | 2000 July 30 – August 1 2000 October 8 – 9 |

2.1. References

FCC 00-326, Fourth Memorandum Opinion and Order, Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems (CC Docket 94-102), September 8, 2000

FCC OET Bulletin 71, Guidelines for Testing and Verifying the Accuracy of Wireless E911 Location Systems, April 12, 2000